



**Minuteman
Repeater
Association**

**The
Minuteman
©2024**



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The Minuteman Repeater Association is a non-profit organization providing communications infrastructure and volunteers for community and emergency events.

Membership Meeting: Wednesday, 17 January 2024 ~7:30—9:30 pm
A 10m FM Antenna to fit into my Attic — Larry Banks, W1DYJ

This is a Hybrid meeting: New England SciTech + ZOOM

(Directions to New England SciTech on Page 9)

Members: log into your account on MMRA.ORG to obtain the ZOOM info.

Non-members: send an email to contact@mmra to request the ZOOM info.

In my role as the MMRA TlaOS Net Manager, I should be able to monitor all of our repeaters. I didn't have 10m FM capability.

I have a homebrew 6m FM ground plane in my attic to monitor the MMRA 6m repeater. I decided to put a 10m FM antenna in my attic without adding another coax run. The attic height is ~5' and a 10m ground plane is at least 8' tall with ~16' diameter radials, so I had to shorten both the height and the length of the radials.

And how do I feed it in parallel with the 6m GP? This gave me an opportunity to learn about using coax as a matching network. *This is the story.*

Larry was licensed in 1962 as novice KN1VFX and became W1DYJ in 1966. From 1969 to 1985 he was an engineer and project manager for Hewlett-Packard Medical R&D in Waltham and Andover MA, involved in developing diagnostic cardiac equipment. In 1985 he was asked to organize the cardiac R&D lab's CAD environment and the SW Testing and Quality group, along with managing the Printed Circuit Layout group, the technical library, ongoing technical education, and ISO9001 as the R&D Section Manager for "R&D Process Improvement." In 1993 he moved to HP Medical Education to be responsible for technical and project management training. When Agilent split out of HP in 1995, he became Agilent Technology's global program manager for their Learning Management System. He "retired" in 2005 and then consulted for Avago Technologies (now Broadcom) on eLearning technologies through 2012.

Larry holds three degrees in EE from MIT. He spends his time chasing DX and contesting in Woburn, traveling with his wife Maren and attending as many jazz and classical concerts as they can. He is the net manager and newsletter editor for the MMRA, publications editor for HamXposition, a member of the YCCC, and a member of the Merrymeeting ARA in mid-coast Maine where they used to have a 2nd home in Harpswell.

We need a Secretary!

Jason, W1HFP, has decided that he can no longer fulfill the time the MMRA requires in this position. We need a member to step forward. See page 9.

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About the Minuteman Repeater Association

MMRA Control Operators Responsibilities

<https://www.mmra.org/MMRACOPolicy-March2019.pdf>

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets each month from September to June. Meeting times, locations, and talk-in frequency vary and are announced in this newsletter and on weekly nets. Meetings are open to all interested parties. Guest speakers and programs of general interest occur in September, November, January, March, and May. The intervening meetings are also open to all members and are for general business.

The Minuteman newsletter is emailed one week before each general interest meeting. Members are encouraged to submit articles: send to the editor at newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8pm the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Contact information is listed on the top of the last page of this newsletter.

No part of this newsletter can be copied or posted elsewhere without prior approval from the club.

MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at contact@mmra.org or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage with that individual on the air. Please include the time and date of any incident.

Repeater and Frequency Information

Band	XMTR Location	Freq	PL	Call	Linking To:	
					Hub 1	Hub 2
10m	Marlboro East	29.680	131.8 Linked to 146.79: 9am-3pm every day	W1MRA	???	???
6m	Marlboro East <i>Remote receive Marlboro West: PL=100</i>	53.810	71.9	W1BRI	PTL	PTL
2m	Brookline	145.160	na	K1MRA	D-Star (REF050C)	
	Belmont	145.430	146.2	KC1CLA	Off the air	
	Mendon	146.610		K1KWP	FTL	PTL
	Quincy	146.670		W1BRI	FTL	PTL
	North Reading	146.715		KC1US	FTL	PTL
	Weston	146.790		W1HAI	PTL	PTL
	Boston	146.820		Linked to 29.68: 9am-3pm every day		
	Billerica	147.120 <i>Output tone = 162.2</i>		K1BOS	FTL	PTL
	Marlborough	147.270		W1DC	PTL	PTL
				W1MRA	PTL	PTL
1½m	Marlborough	223.940		103.5	W1MRA	FTL
	Quincy	224.400	N1KUG		FTL	PTL
	Weston	224.700	N1NOM		PTL	PTL
	Burlington	224.880	KC1US		FTL	PTL
70cm	Lowell	442.250	88.5	K5TEC	FTL	PTL: 446.775
	Weston *	442.700	88.5	N1DCH	Network Hub 2 (PTL to Hub 1)	
	North Reading <i>System Fusion</i>	446.775	88.5 Linked 71.9 Local	W1DYJ	FTL [88.5]	PTL [88.5]
	Marlborough	448.225	na	W1MRA	D-Star (REF050C)	
	Hopkinton <i>System Fusion Out PL = 162.2</i>	449.575	88.5 Linked 71.9 Local	W1BRI	FTL [88.5]	PTL [88.5]
	Marlborough *	449.925	88.5	W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	PTL
	Marlborough *	927.700 <i>PL out = 131.8</i>		W1MRA	PTL	PTL
Marlborough		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	

*Internet	HUB1- 449.925: IRLP node 4133 / Echolink node 4133 Connected to Echolink NEWENG2 conference (9127) for TIAOS net.	
	HUB2 - 442.700: IRLP node 4136 / Echolink node 4136 Connected to 220 Reflector 9124 on Tuesdays	
	927.0625: IRLP 4977	Normally linked to the NE900 Reflector, 9125. Linked to MMRA via "NEW-ENG2" node 9127 for the TIAOS net. Normally linked together.
	927.700: IRLP 4978	

Notes: FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)
Note — a repeater can be linked to only one Hub at a time, however the two hubs can also be linked together.

President's Corner ~ David Hornbaker, N1DCH

Happy New Year! May your year be filled with QSO's and the sunspots be many.

In person: Everyone is invited to attend in person, the January membership meeting at New England Sci-Tech, Natick, Directions: <https://www.nescitech.org/directions/>

Guest Speaker: Larry Banks – W1DYJ – A 10m FM Antenna to fit into my Attic.

Meetings are a great place to meet and greet your fellow hams and to welcome our new members. Bring a friend, you do not have to be a member to attend.

Via Zoom: All MMRA meetings are also available via Zoom. The Zoom code is available to members on <http://www.mmra.org>. If you need assistance getting connected, email us at contact@mmra.org. If you are not a member, you can request the meeting code via that email.

VE Exams: The January VE Session will be held on Saturday, January 20 at 9:00 AM, City Church Marlborough in the Shoebox Building (adjacent to Kelleher Field), 72 Jefferson Street 2nd floor, Marlborough, MA 01752:

<https://www.bing.com/maps?q=72%20Jefferson%20Street+marlborough+ma&FORM=HDRSC4>

Walk-ins are welcome. Please remember to bring a State ID, your FRN, and if upgrading, an Official copy of your current license. For more information, contact Ron – WO1E at ve@mmra.org or w01e@mmra.org.

MMRA Secretary: Jason – W1HFP has informed us that he will not continue as club secretary. For more information see page 9.

Membership renewal: All MMRA memberships expired on August 31. Please check your profile and if your membership expired in 2023, please renew. Renewals may be done on the website, or you can mail your renewal to Minuteman Repeater Association, PO Box 669, Stow, MA 01775-0669. Please allow 7 days for us to process your renewal. Please allow 14 days for renewals that are mailed. While you're on the website (<https://www.mmra.org>) checking your expiration date, please verify your email address.

Tuesday Net: Join us Tuesday night at 8:00 PM for our weekly Technical Information and Other Stuff (TlaOS) net. There will be a lively discussion on all sorts of HAM issues, including equipment, antennas, software, repeaters, and other stuff. The main purpose is to test our ability to link up the repeaters in case of an emergency or to support an event like the Boston Marathon. You can also join via EchoLink if your radio is a little under the weather. See below for more information.

You can find out more information about how and when the repeaters are linked on the website (https://www.mmra.org/repeaters/repeater_linking.html).

Please remember to keep your profile up to date, especially if your email changes. Note that if your callsign changes, send email to contact@mmra.org and we will update your callsign in the database.

73—Dave

15 November 2023 Membership Meeting ~ Minutes

Called to order @ 7:35 PM

Email Vote for Repair for of Prudential Repeater:

Please login to the www.mmra.org and cast your vote if you have not done so
103 people have voted as of an hour before the start of this meeting.

Emergency Fund:

What is it?

\$3,000 emergency fund that can be used for repairs only of an existing repeater..

Requires Board approval.

History and why we need it?

Originally approved in 2018 after .925 died and meeting to vote was cancelled by a nor'easter.
.925 was down for a couple of months.

Why didn't we vote on it in May?

Those of us on the Board forgot to add it to the agenda and no one caught the mistake.

Emergency Fund vote is supposed to occur on our May Meeting

Why can't we vote now (like the Newsletter announced)?

Newsletter announcement had to be published 7 days before the next meeting, according to the by-laws.

Repeater Status Report: - Bob DeMattia – K1IW

Boston Prudential Repeater 146.82 – is off the air. The new repeater has been installed, but there is a problem with the antenna. Club vote is in progress to approve up to \$3K expense. We need to add a 2nd feedline and the Pru has given us permission to do so.

[Editor: this is now resolved and 146.82 is back on the air, better than ever.]

Brookline – Remote RX has been removed. The DSTAR repeater is still there.

Weston – The 146.79 2M – Status has not changed. SWR is still 2:1 at the radio end. Since the weather was not cooperative at the Campion Center on the 9/26 visit with NN1C, this will have to wait until Spring.

10m Repeater – Weston – After some tuning, receiver breaks squelch at -119dBm, an 11dB improvement, still not great. Bernie, N1IMO, the owner of the linked NH repeater network and also owner of two-way radio company in Nashua, is donating a Kenwood TK-6110 as a possible replacement receiver. Bob will be picking it up today. If this radio has better sensitivity, it will replace the aging Mastr II receiver and will be wiring it in a few days.

North Reading –146.715 – Replacement is ready to install – scheduled to be done on Saturday, December 2nd.

Burlington – 224.88 - Bob suspects drop-outs occur when there is doubling/heterodyning on '925. It appears the '88 link decoder is more sensitive to this than others. Still need to try putting the link radio in CSQ mode for during the TIOS Net.

900 MHz Repeater – 927.0625 W1OG has informed us that he has picked up the 900 MHz Quantars and is checking them out before handing them over to the club. WA1NVC has volunteered to do the set-up work on it.

Belmont – 145.43 –EX-BELMONT – is off the air due to loss of site. Board to discuss options at the December meeting. This repeater will be rebuilt before it is installed at its new location. The second

15 November 2023 Membership Meeting ~ Minutes, cont'd

Kenwood repeater, which was intended as the Mendon replacement, will probably be used for this. Joe Weisse, W1HAI, suggested the MMRA send the family who had graciously allowed the repeater to remain on their property, (until selling their home) a "Thank You" from us on their generosity.

Future Projects – In addition to the TK-6110 mentioned above, N1IMO is donating two Motorola Quantor VHF repeaters to the club. If these check out, they can be used to upgrade the remaining VHF Mastr II's that are running Mendon and Marlborough West.

VE Exam Session

Saturday, October 21st at 9:00 AM

Marlborough Central Fire Station Training Room, 215 Maple St (Rte 85) Marlborough, MA 01752.

Please tell your friends, who are interested in taking tests, that they must have photo IDs and FRNs

Copy of license required if upgrading (or proof from the ARRL or QRZ).

Note: SS#s, are no longer accepted by the FCC. Everyone must have an FRN.

Upcoming Meetings

December 20, 2023, 7:30 PM Business Meeting – Zoom Teleconference only.

January 17, 2024, 7:30 PM – A 10m Antenna . . .to fit in my attic . .

Speaker Larry Banks – W1DYJ

New England Sci-Tech, Natick and Zoom

February 20, 2024, 7:30 PM Business Meeting- Zoom Teleconference only.

March 20, 2024, 7:30 PM Membership Meeting

Speaker TBD; Location TBD

April 17, 2024, 7:30 PM Business Meeting- Zoom Teleconference only

May 15, 2024, 7:30 PM Membership Meeting – Twenty Things I've Learned While Curating the Digital Library of Amateur Radio & Communications

Annual Officer Elections

Emergency Fund Vote

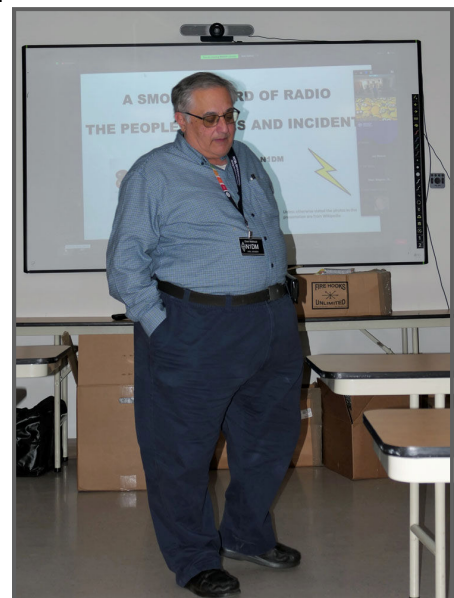
Speaker: Kay Savetz

Location TBD & Zoom Teleconferencing

Tuesday night 8:00 PM (year round)

Technical, information and Other Stuff Net

MMRA Linked Repeaters



Presentation

A Smorgasbord of Radio – The People, Places and Incidents – By Dom Mallozzi, N1DM

This historical research covered 13 Scientists and Engineers starting in 1864 that contributed to the development of radio and telephony communications that most take for granted. Starting with James Clerk

15 November 2023 Membership Meeting ~ Minutes, cont'd

Maxwell (1857-1894 UK) who developed a set of mathematical equations citing radio waves existed mathematically and are known today as "Maxwell's Equations". Developing further was Heinrich Hertz (1857-1894 Germany) who demonstrated the existence of radio waves in 1886 by producing electric sparks. His research was the foundation of frequency set by international agreement on Weights and Measures. Others followed like Marconi, Dr. Karl Braun, Nikola Tesla, Lee De Forest, Reginald Fessenden, John Stone Stone, Greenleaf Pickard, and Edwin Armstrong, as radio signals developed from tonal sounds, to remote control, to voice and eventually long distance worldwide communications. Companies like RCA, GE and AT&T and many other businesses developed from the work of these great scientists and engineers.

The Places: Siasconset, Nantucket, MA., Point Judith & Block Island, RI., Brant Rock, Marshfield, MA; Bar Harbor, Belfast, Houlton, ME; and Chatham & Marion MA; are deep in the historical development of radio communications ranging from ship to shore transmission to across the ocean and laying of the transatlantic cable which started with telephony and later voice communication. The transatlantic telephone receiver used SSB on approximately 60 KHz. Later a transatlantic phone call from NYC to London, which was not a direct route, cost \$529 per minute, which is equivalent to \$2,646 in 2023. Please note this summary here leaves out an enormous amount of details that was fascinating to us as Dom presented his slides.

The Real QRO Station: Is a US Navy Radio Station, NAA, in Cutler, ME that started in 1961 with a very low frequency transmitter around 24 KHz with a power of 2 Megawatts. The antenna is 75 miles of wire on 26 towers.

Events: The most known incident was the Titanic which sank on April 14, 1912 where 1,514 died and only 710 were saved after the RMS Carpathia responded to a wireless distress call. That horrific tragedy resulted in major changes in radio operations where monitoring is constantly performed. Another standard was "SOS" as the only accepted international distress call.

Again, I strongly recommend viewing Dom's entire slide deck below. Consider this summary cursory.

The slide deck:

https://www.mmra.org/20231115_meeting/a_smorgasbord_of_radio_nov_2023_rev_11.pdf

Meeting Attendees:

David Hornbaker, N1DCH; Larry Banks, W1DYJ; Kevin W Paetzold, K1KWP; Stephen Babbitt, KC1LPZ; Ken Horton, KA1GFN; Deb Horton, N1NVJ; Dom Mallozzi, N1DM; Eric Williams, KV1J

Zoom Meeting Attendees:

Bob DeMattia, K1IW; Joe Weisse, W1HAI; Glenn Small, KV1GS; Roger Coulson, WA1NVC; Ed Curley, KC1CLA; Matt Wagner, N1ZYY; Bill Nicholson, N1WEN; Jonathan Traum, K1BTZ; Jessie Kneeland, KC1SLQ; Bob Evans, N1BE; John Nitzke, KF1KI; Eric Williams, KV1J

Meeting Adjourned at 9:20 PM

Respectfully Submitted by Stephen M Babbitt, KC1LPZ, Clerk

Just a Few of the slides from Dom's presentation—I

A SMORGASBORD OF RADIO

THE PEOPLE, PLACES AND INCIDENTS



DOMENIC MALLOZZI, N1DM
NOVEMBER 2023



Unless otherwise stated the photos in this presentation are from Wikipedia

THE SCIENTISTS AND ENGINEERS

JAMES CLERK MAXWELL (1857-1894) UK



- Brilliant Scottish mathematical physicist
- Postulated that radio waves existed mathematically in 1864. He developed a set of equations still used today and referred to as 'Maxwell's Equations'.
- This was done completely with mathematical models with no experimental evidence to validate this theory.

THE SCIENTISTS AND ENGINEERS

EDWIN H. ARMSTRONG (1890-1954) US



- Professor of Electrical Engineering at Columbia University with 42 Radio Patents (the first in 1913)
- Inventor of modern radio receiver technology including regenerative, super-regenerative and superheterodyne receivers. Superheterodyne receivers are still the most used today.
- Invented FM radio

MARCONI'S FIRST PERMANENT US STATION AT NANTUCKET



Date
1903 (circa)
Notes
View of the first Marconi wireless telegraph station and tower in Siasconset. Sign on the porch middle post reads: New York Herald Wireless Telegraph Station.

Courtesy of the Nantucket Historical Association
Photo Collection
PH156 - Photographic Negative Co
180309

Image Number
F4210

THE SCIENTISTS AND ENGINEERS WHO DEVELOPED RADIO

- James Clerk Maxwell (Great Britain)
- Dr. Heinrich Hertz (Germany)
- Guglielmo Marconi (Italy / Great Britain)
- Dr. Karl Braun (Germany)
- Chandra Bose (India)
- Alexander Popov (Russia)
- Nikola Tesla (Serbo-Croatian/US)
- John Stone Stone
- Greenleaf Whittier Pickard
- Dr. Lee DeForest
- Reginald Fessenden (Canada / US)
- Fr. Roberto Landell de Moura (Brazil)
- Edwin H. Armstrong

THE SCIENTISTS AND ENGINEERS

LEE DeFOREST (1873-1961) US



- PhD in Physics from Yale
- Invented the Audion (3 element tube) in 1906 which made home radios possible along with improvements to the long distance telephone
- Very interested in transmitting the human voice by radio and demonstrated systems as early as 1907

NEW ENGLAND'S EARLY RADIO STATIONS

SIACONSET, NANTUCKET, MA
POINT JUDITH AND BLOCK ISLAND, RI
BRANT ROCK, MARSHFIELD, MA
BAR HARBOR, ME
BELFAST, ME
HOULTON, ME
CHATHAM AND MARION, MA

BRANT ROCK (MARSHFIELD). MA



GE 50 KHz ALTERNATOR USED BY FESSENDEN FOR VOICE & MUSIC TESTS IN DEC. 1906



REGINALD FESSENDEN



430 FOOT ANTENNA FOR STATION AT BRANT ROCK

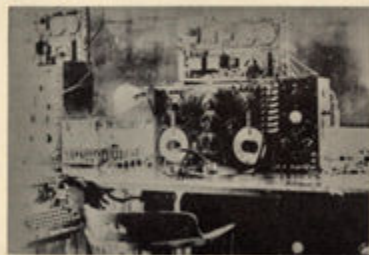
Just a Few of the slides from Dom's presentation—II

1918 STATE OF THE ART 'LF' RECEIVER AT U.S. NAVY STATION NDB, BAR HARBOR, ME

Located at U.S. Navy radio station NDB - Otter Cliffs in Acadia National Park near Bar Harbor, ME.

The station was built by Allesandro Fabbri (amateur call 1AJ) and offered to the U.S. Navy for the war effort with the condition that Fabbri became the facility commander.

Station equipment and some antennas were provided by Wireless Specialty Apparatus Co.



One of the trans-Atlantic long wave receiving positions, Otter Cliffs. Photo courtesy Joseph Memorial Library.

BELFAST, MAINE



ORIGINAL RCA BELFAST STATION

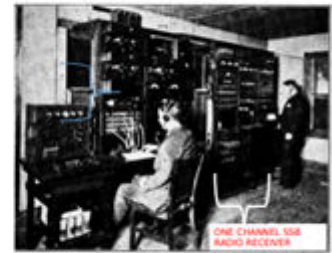
HOULTON, MAINE

- The transatlantic telephone receiver used **Single Side Band** on approx. **60 khz**.
- It was initially a single channel operation.
- The antenna was a 4 antenna array with each antenna 14784 feet long (approx. one wavelength) in 2 offset pairs, each pair was spaced 1149 feet apart and the total width was 11039 feet. Because of the staggering of pairs in the direction of the azimuth, the total antenna length was 18297 feet. This resulted in an incredible **7.2 square mile antenna**. The antenna was so unusual it was issued its own U.S. Patent.

TRANSATLANTIC PHONE CALLS

This is the receiver site in a 1920 farm house in Houlton, Maine. This house still exists today as a private residence.

The 3 right hand racks are the SSB receiver for the UK transmitter and the remaining racks on the left are the equipment to send it by telephone line to New York



ONE CHANNEL SSB RADIO RECEIVER

From: www.navyradio.com

TRANSATLANTIC PHONE CALLS



These two pictures show the 150,000 watt transmitter in Rocky Point, Long Island, New York. This is a single channel transmitter like WBZ only on a much lower frequency. This transmitter used **VOX**. It only uses 50,000 watts.

US NAVY RADIO STATION NAA IN CUTLER, MAINE

BECAME OPERATIONAL IN 1961

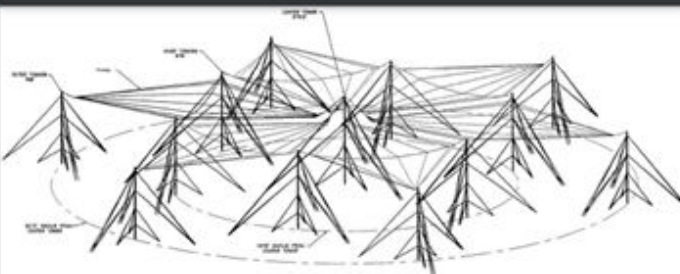
VERY LOW FREQUENCY TRANSMITTER (24 KHz) WITH A POWER OF 2,000,000 WATTS

ANTENNA IS 75 MILES OF WIRE ON 26 TOWERS

GROUND SYSTEM IS 2000 MILES OF BURIED WIRE

3000 ACRES INCLUDING A PENINSULA WITH 12 MILES OF ROADS

HAS ITS OWN POWER STATION CAPABLE OF 15,000,000 WATTS CAPABILITY DOCK AND TANK FARM FOR FUEL FOR 5 GENERATORS (22,000 BARREL STORAGE)



ONE HALF OF THE NAA ANTENNA

VLF ANTENNA ARRAY

FROM: www.navyradio.com



ANTENNA TUNER



FROM: www.navyradio.com

The MMRA needs a Secretary

Jason, W1HFP, has indicated that he will not run for Secretary for next year

The board needs to identify candidates for this position

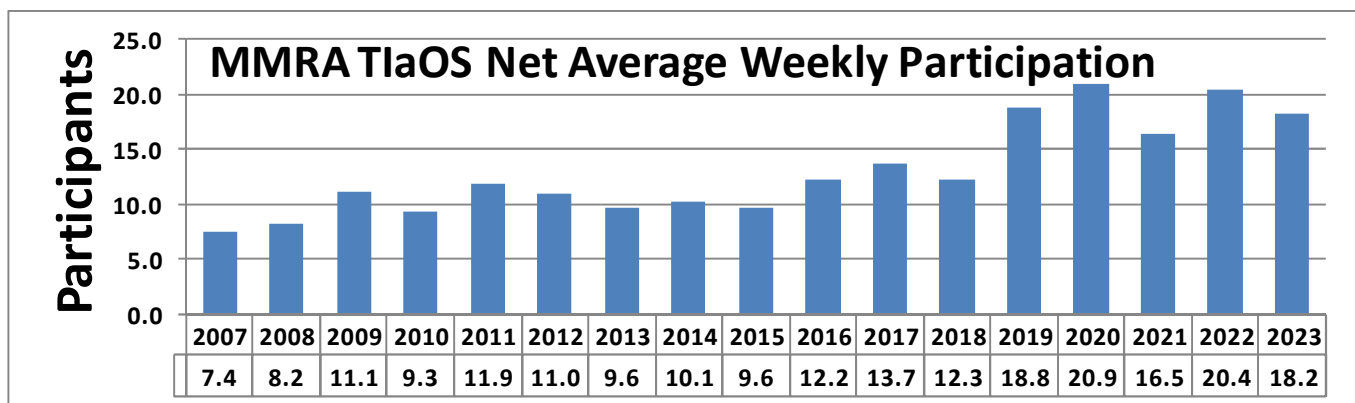
The new secretary will need to be trained

○ Duties:

- Process new and renewal memberships (working with the treasurer and the VE team)
- Publish the newsletter to the MMRA web site
- Attend Business Meetings
- Respond to any email regarding membership issues

If you are interested, send an email to contact@mmra.org

Annual TiaOS Net Report ~ Larry Banks, W1DYJ



In 2023 weekly participation was around 18. The largest participation during 2023 was on both 28 February and 25 April, with 26 check-ins. I want to thank Tom, KB1OQA; Ed, KC1CLA; Kevin, K1KWP; and Jonathan, K1BTZ for being net controls during this past year. We all hope to hear you Tuesday nights at 8 pm. And we would be HAPPY to have you (any of you...) volunteer to be a Back-Up NC!!! We have a script you can use.. All of our current NCs would welcome you to the "club."

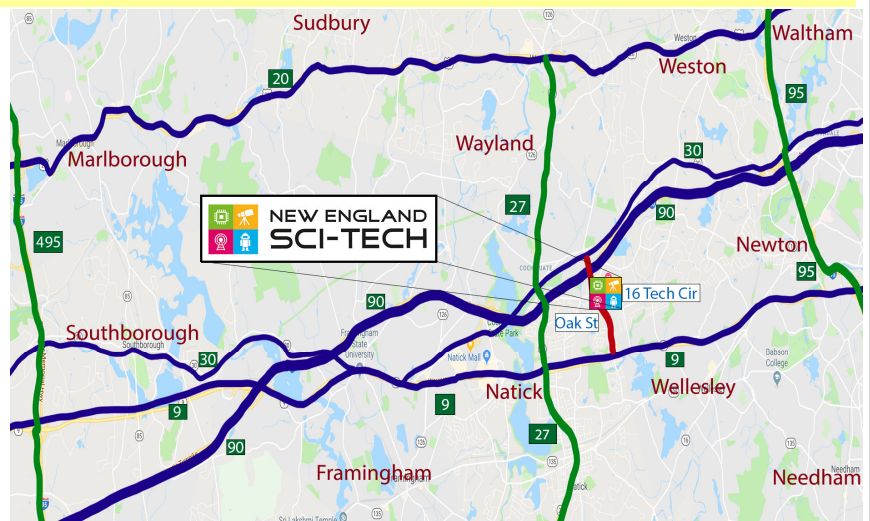
Directions to New England Sci-Tech Inc.

16 Tech Circle <https://www.nescitech.org/directions/> **Natick MA 01760**

From the north: take Rt 95 or Rt 27 or Rt 495 south to Route 30 toward Wayland. Once in Wayland, turn South on Oak Street and in 1/2 mile look for Tech Circle on your left. Follow Tech Circle to the end.

From the south: take Rt 95 or Rt 27 or Rt 495 north to Route 9 toward Natick. At the Wellesley-Natick line, turn North on Oak Street and in 1/2 mile look for Tech Circle on your right. Follow Tech Circle to the end.

From the east or west: follow either Rt 30 or Rt 9 toward Natick, turn onto Oak Street at a set of traffic lights, and in 1/2 mile look for



Keeping Amateur Radio Alive ~ Stephen Babbitt – KC1LPZ

For some species extinction is gradual, not necessarily from the footprint of man. Nature has a demanding and cruel way of separating the fit from the unfit whether it is fair to those that are on the path to obliteration or survival. Man may believe it can one day control nature's destiny, but we have yet to solve our own destiny of peacefully coexisting with one another.

Let's relate this to the hobby we love so dearly: Ham Radio. Can we attract and excite the next generation to our great pastime that we cherish so passionately? Can we convey the enjoyable memories and experiences Ham Radio has enriched our own lives? If we can articulate our passion, our hobby will live far beyond our time on this planet.

How passionate are you to pass along what we do? We don't need to form a committee to study the causes on why our numbers are decreasing, We have, inadvertently, let the next generation stare aimlessly into their smart phones and computers, where they perceive they can contact the world and our endless libraries of information at the touch of their modern technology. There is some truth to that notion. But what critical thinking have we shared to help them discriminate between fact and fantasy? Social media is a cesspool where humans and non-human bots can interact with many vulnerable individuals becoming susceptible to being gaslighted.

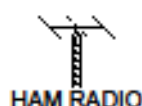
Ham Radio by contrast means all of us are licensed and must follow the basic guidelines to communicate with one another. This is the right to be on the air rather than sitting in someone's basement anonymously behind a keyboard. Now add that Hams can communicate in any number of hazardous situations, like power outages: we can remain on the air without the internet or cell phones. Being identifiable by our callsign we are more likely to be careful with the information we pass on to others. Ham Radio operators do not have all the answers, but we do care to help others when they may need assistance.

What better thrill chatting with someone locally or far off on the other side of our country or globe to learn something new, or to just develop friendships that you are likely to have when your travels result in their local vicinity. Last September, for example, I was at a business conference in Phoenix Arizona, to wind up connecting up with the Vice President of the Arizona Amateur Television Network Group, meeting his family and joining in on a birthday celebration of one of his aunts who just turned 89 and shared her phenomenal artwork with me. How many of you would have loved to take a break from parts of a routine conference with a local ham radio friend, his family and enjoy the local area that I likely would not have seen? Be honest: *that is really cool.*

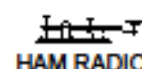
Ham Radio offers so much more. It is high time we put our thoughts together and share it with the next generation. Growing our hobby is simple. If each of us can add one more individual to our ranks, our survival and growth are inevitable.

449.575 Hopkinton / 448.225 DSTAR to swap frequencies first week of March Bob DeMattia, K1IW

In early March, the frequencies of Hopkinton analog and Marlborough DSTAR will be swapped. When complete, Hopkinton will be on 448.225 and the Marlborough DSTAR will be on 449.575. The reason for this is to reduce interference on the Hopkinton site. When Hopkinton is linked, it must receive the HUB1 output of 449.925 while transmitting on 449.575. This is a 350KHz separation. By swapping the frequencies, the separation will be 1.7 MHz. Both repeaters will be off the air for a short time (a few hours) while the swap is being done.



Algonquin Amateur Radio Club Marlborough, MA



AMATEUR
RADIO

FLEA MARKET

Saturday, February 17, 2024



Marlborough 1Lt Charles W. Whitcomb School
(formerly Intermediate/Middle School)
25 Union St. or
off Bolton St. (Rt. 85)
Marlborough, Massachusetts

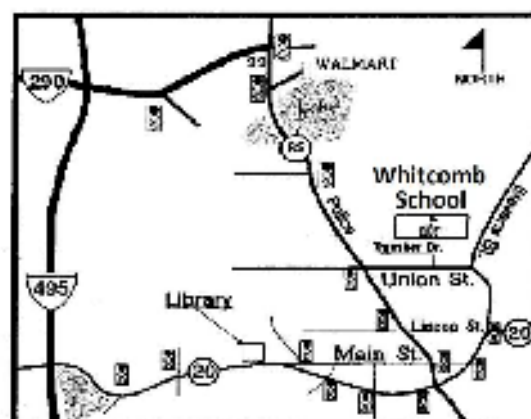
6 ft. Tables (round and rectangular)
Tables are \$15.00 each if purchased by
February 9, 2024 (\$20.00 each accepted
at the door if space is available)
Tables include vendor admission for one
person.

SETUP TIME: 6:30 AM

For more information email:
fleamarket@n1em.org

Talk In: N1EM/R 446.675 - (pl 88.5)
Updates will be on our web at:
<http://n1em.org>

Time: 9:00 AM to 1:00 PM
General Admission: \$5.00
VEC Exams: 9:00 AM



Send This Form For Table Reservations with Check Payable to:

AARC, PO Box 258, Marlborough, MA 01752 (\$15.00 each table due by February 9)

Name: _____ Call: _____

Address: _____ No. Tables: _____

City: _____ State: _____ Zip: _____

Telephone: (____) _____ Amount Enclosed: \$ _____ .00

Email: _____

20 December 2023 Business Meeting ~ Minutes

Called to order @ 7:33 PM

MMRA Secretary Position Opening

Jason – W1HFP – has indicated he will not run for Secretary next year

The Board wants to identify candidates for this position.

The new secretary will need to be trained.

Duties:

- Process new and renewal memberships (working with the Treasurer and the VE Team).

- Publish the newsletter to the MMRA website.

- Attend Business Meetings

- Respond to any email regarding membership issues.

A motion was made that Dave and Kevin will be performing the duties as Acting Secretary, which was passed unanimously.

AREDN Update

Roger – WA1NVC – attended an AREDN meeting and reports the Mass AREDN group must focus on its primary mission: setting up their communication system to increase interest and usage of the MESH network.

Repeater Status Report: - Bob DeMattia – K1IW

Belmont Relocation — Various sites in Belmont were suggested, all of which will mean starting from scratch cold calling people in Belmont.

To that end, Bob is working with Ed Curley who will approach the Emergency Management Director for Belmont to determine if we can interest him in having a Ham Radio Repeater.

Since the installation probably can't happen until Spring, Bob thinks we should take the time to find a good site and not just use a site we have because it is there.

Brookline – WA1NVC suggested we replace the DSTAR in Brookline with 145.43. We will need to reinstall a link antenna and feedline. We suspect the main antenna feedline may be damaged. So this is not as trivial as it may sound.

We could probably move 145.16 back to Marlborough East, which makes it sort of redundant with the UHF machine. Also, 145.16 is the only Boston-area D-Star system currently available. Bob suggests we should make an extra effort to find a different site.

W1HAI suggests we could find a site in Middleborough.

Quincy 2m .67 Repeater – On last night's TIOS Net the repeater failed to link up to the network. Currently Quincy 2m repeater has been disconnected from Hub1. Some technical issues persist requiring onsite maintenance. Bob is waiting for the City of Quincy to response to his initial contact attempt. This is not a high priority because .82 on the Pru has pretty much similar coverage.

North Reading — On Saturday, 12/2 the first Kenwood NXR-710 was installed.

Belmont Repeater — Until a new location is found, the second Kenwood NXR710 will be part of the Belmont rebuild. The NXR-710 is necessary for Belmont because its receiver can go down to 144 MHz. The Quantars cannot without difficult modifications.

Hopkinton — Tone Problem: The output tone on Hopkinton had to be disabled because the transmitter (on 449.575) gets into the link receiver (on 449.925).

This is a 350 KHz difference. One possible solution would be to change the frequency of Hopkinton to

20 December 2023 Business Meeting ~ Minutes—cont'd

a lower frequency. Several are available in the low 448 MHz range.

Hopkinton is fully synthesized, so the only work that would need to be done would be to set the new frequency and tune the duplexers.

While no official vote was taken, the Board is receptive to changing the Hopkinton frequency.

Donated Equipment

In addition to donating the TK6110 for the new 10m receiver, N1IMO, also donated two fully functional Motorola Quantar repeaters (like the one we put up at the Pru).

Bob is recommending we designate these as the replacements for Marlborough West and Mendon, which are our last two VHF Mastr II's.

The largest expense Bob sees here is for the battery backup on 147.27. The Quantar requires 24V for its battery input, which is done with two 12V batteries in series. We currently have only one.

Other than that, Bob doesn't see a lot of other expenses in getting these replacements ready to install. Both systems are operating without issues, so there is no rush to do this, but it won't hurt to get them ready to go.

Lowell Hub2 Problem

For similar reasons, the Lowell repeater on 442.250 is not linkable to HUB2. This is because its transmit frequency is 450 KHz away from the receive frequency of 442.7.

Lowell could work correctly with a change to a 446-448 frequency as well. Lowell is a little trickier because it is crystal controlled Mastr II and it is less than trivial to take a Mastr II with high RX, low TX and flip it.

Perhaps, if the club someday approves a replacement repeater for 442.250, we could change the frequency at the same time, except for the special-case repeaters on 10m, 6m, and Brookline DSTAR.

Linking Issue Summary

A discussion on the linking issue primarily came from Roger and Kevin with Kevin asking if we could just change the frequency to HUB2 to solve the problem with Lowell and Hopkinton? Roger thought that was a good idea. They will discuss it in greater detail with Bob later on. Bob expressed some reservations with no resolution finalized at tonight's meeting as this is a work in progress.

Equipment List — In summary, a spreadsheet — 5 pages — was presented listing what the MMRA has and where these pieces of equipment are located.

VE Exam Session

Saturday, January 20th at 9:00 AM

City Church Marlborough in the Shoebox Building (adjacent to Kelleher Field, 72 Jefferson Street, 2nd Floor, Marlborough, MA 01752

Please tell your friends, who are interested in taking tests, that they must have photo IDs and FRNs

Copy of license required if upgrading (or proof from the ARRL or QRZ)

Note: SS#s, are no longer accepted by the FCC. Everyone must have an FRN

Upcoming Meetings

January 17, 2024, 7:30 PM — A 10m Antenna . . .to fit in my attic.

Speaker Larry Banks — W1DYJ

New England Sci-Tech, Natick and Zoom

February 21, 2024, 7:30 PM Business Meeting- Zoom Teleconference only.

20 December 2023 Business Meeting ~ Minutes—cont'd

March 20, 2024, 7:30 PM Membership Meeting

Speaker TBD; Location TBD

April 17, 2024, 7:30 PM Business Meeting- Zoom Teleconference only

May 15, 2024, 7:30 PM Membership Meeting

Annual Officer Elections

Emergency Fund Vote

Speaker: Kay Savetz – Twenty Things I've Learned While Curating the Digital Library of Amateur Radio & Communications

New England Sci-Tech, Natick and Zoom

Tuesday night 8:00 PM (year-round)

Technical, information and Other Stuff Net

MMRA Linked Repeaters

Newsletter

Information to Larry, W1DYJ

Deadline, Friday, December 29, 2023

Email W1DYJ@mmra.org

Meeting Attendees:

David Hornbaker, N1DCH; Larry Banks, W1DYJ; Kevin W Paetzold, K1KWP; Roger Coulson, WA1NVC; Ed Curley, KC1CLA; Stephen Babbitt, KC1LPZ; Ken Horton, KA1GFN; Deb Horton, N1NVJ; Joe Weisse, W1HAI; Joe Fratto, N1RLO; Bruce Pigot, KC1US; Jim Gessner, K1YSO; Glenn Axelrod, KC1HPZ; Jim Babb, AA1BA; Kevin O'Hara, KA1SC; Jon Traum, K1BTZ; Yuri Bohner, KC1LNQ; Alan Lewis, K1ALL; Eric Balles, W1ENB; Bob DeMattia, K1IW; Danielle Babbitt, KC1TTM.

Meeting Adjourned at 8:53 PM

Respectfully Submitted by Stephen M Babbitt, KC1LPZ, Clerk

The Amateur's Code

The Radio Amateur is:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

Paul M. Segal, W9EEA, 1928

Treasurer's Report ~ Kevin Paetzold, K1KWP

The MMRA receives a significant amount of donations each year. On behalf of the club I would like to acknowledge and thank people below who donated since my list in the November newsletter:

KC1PWO, W1HAI, K5TEC, KB1LKR

As of this writing there are 177 paid members for the 2023-2024 year. At this point 51 people would need to join or renew to reach parity with the 2022-2023 year (which ended on Aug 31, 2023). One hundred (100) members have not yet renewed and as of Jan 1, 2024 these memberships have expired. Those members will likely not see this newsletter until the March Newsletter is available if they renew!

The funds balance was \$22193.93 on June 1, 2023. At this writing on Dec 30, 2023 the balance is \$18088.97. Based on all the information I have I predict the balance on June 1, 2024 is likely to be \$18493.48. This assumes we get the 51 new memberships/renewals to reach parity with last year. This also assumes the membership and/or board do not approve any additional significant spending not already known.

As noted in the previous newsletter N1CTY donated a bunch of radio equipment to the club. We will be attempting to sell this at the upcoming Marlboro flea:

BTech UV25-X4 Mobile, Beofang F8-HP HT, Kenwood THF-6A HT, Tram 2-band base antenna, Ed Fong 1-band base antenna, and a Pyramid 10amp Power Supply. There are also many HT antennas and accessories including large capacity batteries, drop in charger, USB programming cables for the above.

If you are interested in any of the above before the flea send email to contact@mmra.org. Reasonable market based offers only please. However keep in mind that we want to avoid paying eBay fees, PayPal fees, postage, shipping costs, etc... so feel free to take that into account :-).



North Reading 2m Replacement ~ 2 December 2023

Saturday morning, 2 December, our Technical Officer Bob, K1IW, along with help from John, WN9T, Kevin, K1KWP, Bruce, KC1US, Roger, WA1NVC, and Larry, W1DYJ, arrived at the North Reading site to swap in our new Kenwood NXR710 repeater.

W1DYJ Photos



Upcoming MMRA Meetings

Note: Meeting locations and times are subject to change.
Consult the MMRA website for the most up-to-date information.

**ZOOM Teleconference login info is available
once you log into your account on MMRA.ORG**

Non-members: if you wish to attend, email contact@mmra.org.

January 17, 2024, 7:30 PM: Membership Mtg

A 10m FM antenna to fit into my attic Larry Banks, W1DYJ
Location: New England Sci-Tech + Zoom Teleconference

February 21, 2024, 7:30 PM Business Meeting – Zoom Only

March 20, 2024, 7:30 PM: Membership Mtg

Topic: TBD
Speaker: TBD Location: New England Sci-Tech + Zoom Teleconference

April 17, 2024, 7:30 PM Business Meeting – Zoom Only

May 15, 2024, 7:30 PM Annual Meeting

Twenty Things I've Learned While Curating the Digital Library
of Amateur Radio & Communications
Kay Savetz - K6KJN
Location: New England Sci-Tech + Zoom Teleconference

June 19, 2024, 7:30 PM Business Meeting – Zoom Only

Don't Forget — Join Us!

Every Tuesday @ 8 PM
Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the
TIOS Net. Keep up with what's happening in the MMRA and
ask your ham related questions.

Net Control Operators:

Week 1 W1DYJ	Larry Banks
Week 2 K1BTZK	Jonathan Traum
Week 3 KC1CLA	Ed Curley
Week 4 K1KWP	Kevin Paetzold
Week 5 KB1OQA	Tom Turner

To connect using Echolink during the Net:

- Echolink Conference *NEW-ENG2*

**NOTE: we need another NC to be available as a substitute. If
you are interested, email W1DYJ@mmra.org**

MMRA Leaders

Executive Board — Officers

President	Dave Hornbaker	N1DCH
Vice President	John Spencer	WA1MDD
Secretary	Jason Peardon	W1HFP
Treasurer	Kevin Paetzold	K1KWP
Clerk	Stephen Babbitt	KC1LPZ

Executive Board — Directors

Director »2024	Rob Evans	N1BE
Director »2024	James Lee	N1DDK
Director »2025	Bob DeMattia	K1IW
Director »2025	Roger Coulson	WA1NVK

Appointed

Technical Officer Bob DeMattia K1IW

Repeater Trustees

Belmont 145.43	Ed Curley	KC1CLA
Billerica 147.12	Mike Rioux	W1USN
Boston 146.82	John Mullaney	K1BOS
Boston 927.0625	Rick Zach	K1RJZ
Brookline 145.16	Joyce DeMattia	K1MRA
Burlington 224.88	Bruce Pigott	KC1US
Hopkinton 449.575	Bryan Cerqua	W1BRI
Lowell 442.25	Bob Phinney	K5TEC
Marlborough 53.81	Bryan Cerqua	W1BRI
Marlborough: 29.68, 144.39, 147.27, 223.94, 448.225, 449.925, 927.70 all as W1MRA		
Mendon 146.61	Bill Northup	N1QPR
N. Reading 146.715	Kevin Paetzold	K1KWP
N. Reading 446.775	Bruce Pigott	KC1US
Quincy 224.40	Larry Banks	W1DYJ
Quincy 146.67	Bill Dunn	N1KUG
Weston 146.79	Bryan Cerqua	W1BRI
Weston 224.70	Joe Weisse	W1HAI
Weston 442.70	Eddie Mulhern	N1NOM
	Dave Hornbaker	N1DCH

Additional, non-Voting

Newsletter Editor	Larry Banks	W1DYJ
Emerg. Coord.	Kevin Paetzold	K1KWP
Pub. Serv. Coord.	Bruce Pigott	KC1US
VEC Liaison	Ron Rothman	WO1E
Net Manager	Larry Banks	W1DYJ
Web Page Editor	Bob DeMattia	K1IW
Social Media Coord.	Steve	
Umans	K8ZBE	

President Emeritus

Bob DeMattia K1IW

Technical Officer Emeritus

Bryan Cerqua W1BRI

Contacting the MMRA



Members: mmra@groups.io

Note: This may take some time.

You must be approved by the modera-



<http://www.mmra.org/>



<https://www.facebook.com/mmraham>

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MMRA VE SESSIONS

Check out <https://www.mmra.org/exam.html> or email ve@mmra.org

Ask your friends to become a member Just let them know that it is not fully automated. Although they can log into the MMRA website immediately, they need to be manually processed. This could take up to a week.

If you haven't updated your MMRA profile in a while, now is the time! Log into < [MMRA.ORG](http://www.mmra.org) > to do so.

Previous issues of the MMRA Newsletter are available at: www.mmra.org > [Newsletter Archive](#) (on the left). They are also available at DLARC: <https://archive.org/details/minuteman-repeater-association>

Heavy Hitters Traffic Net

This net is active on our repeaters Sunday to Friday evenings from 9:45—11 PM and Saturday from 10-11. Active repeaters are:

- 2m:** Mendon (146.61), Quincy (146.67), North Reading (146.715), Boston (146.82), and Marlborough (147.27)
- 220:** Marlborough (223.94), Quincy (224.40), Weston (224.70), and Burlington (224.88),
- 440:** Lowell (442.25), North Reading (446.775), Hopkinton (449.575), and Marlborough (449.925)



NEW ENGLAND SCI-TECH

New England Sci-Tech Inc is a new 501(c)(3) STEM education center, amateur radio training center, and maker space located at 16 Tech Circle, Natick. It is home to New England Amateur Radio Inc (NE1AR) and the youth radio club Sci-Tech Amateur Radio Society (STARS). NE Sci-Tech welcomes memberships and donations via www.NESciTech.org or www.NE1AR.org.

Get connected on the MMRA Repeater System ~ Dave Hornbaker N1DCH

What is the best way to get connected on the MMRA repeater system? Try announcing yourself! Just say your call sign followed by "listening". If you want, you can include the last 3 digits of the repeater frequency. For example, "N1DCH listening" or maybe "N1DCH listening on 925", you may very well get a response. Try to connect by announcing yourself several times.

Most of the time, Marlborough Hub1 (449.495) is linked to the following repeaters, Boston (146.820), North Reading (446.775 and 146.715), Mendon (146.610), Lowell (442.250), Hopkinton (449.575) and Quincy (146.67.) Remember that when the repeaters are linked, you need to wait two or three seconds after you key up and before you speak. This is especially important on the TlaOS net on Tuesday when most of the repeaters are linked.

You can also link (and delink) the repeaters yourself. See the information you received when you became a member, or check the [User Control Codes](#) once you log into the MMRA web.

Try one of the non-linked repeaters too. There are Hams monitoring them as well. For more information on the repeater network and how it is linked at various times, check out https://mmra.org/repeaters/repeater_linking.html.